

ABSTRACT OF THE DISCLOSURE

In accordance with the presence or absence of heat, a transistor shows a relatively rapid change, while a cooling water CLW shows a relatively gentle change. The temperatures of both members settle down to approximately equal temperatures when no heat is generated in the transistor. At this time, the temperature of one of the transistor or the cooling water and the amount of energization of the transistor are used to estimate the temperature of the other member. This method is applied to other temperature estimations, such as estimation of the temperature between a stator coil and a stator iron core of a motor etc.